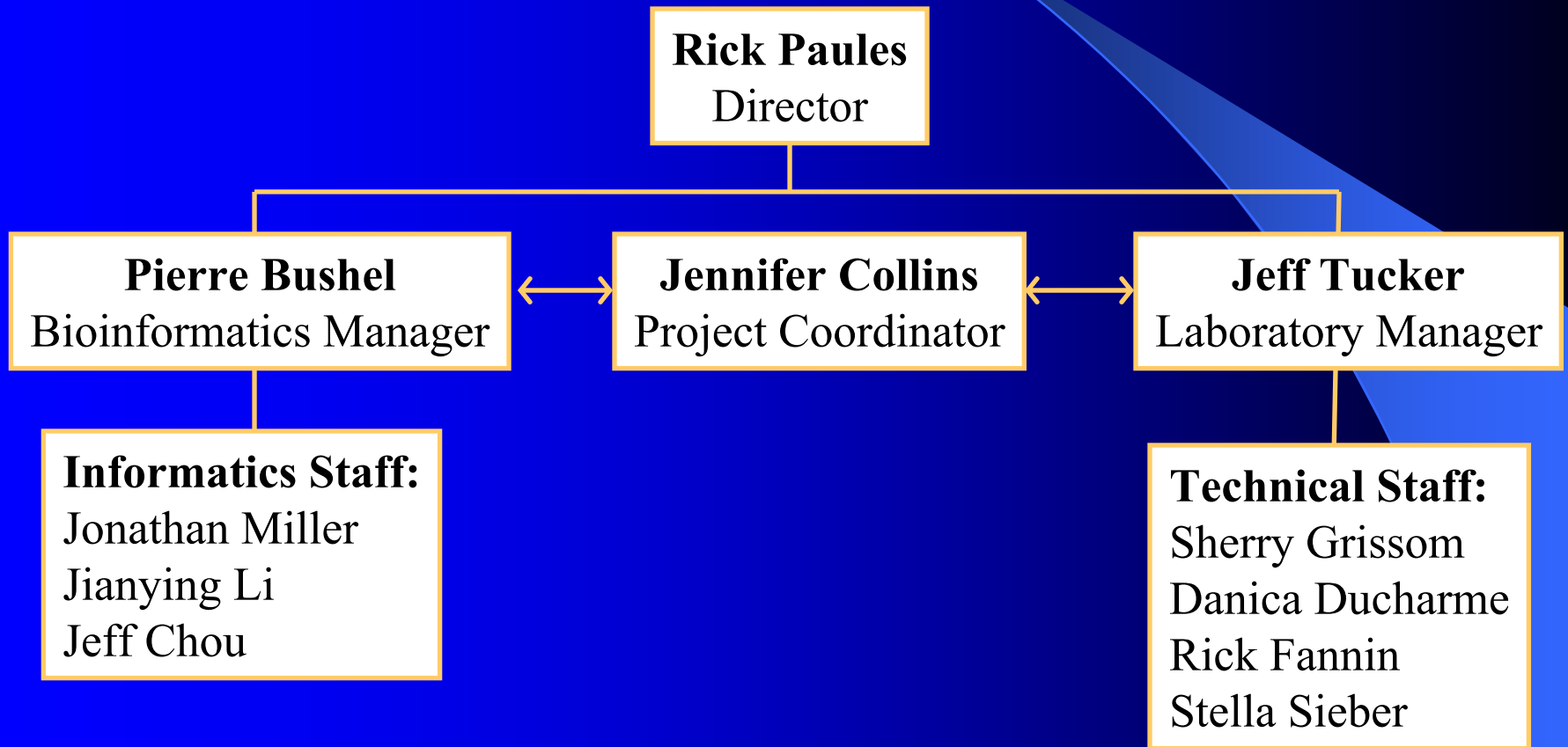


Microarray Data Analysis: My hybs are done – now what?

Jennifer B. Collins

Organization of the NMG



General Procedures

Image analysis (QA/QC)



QA/QC information deposited into MAPS & reports generated



MAPS analysis



Meeting with investigator

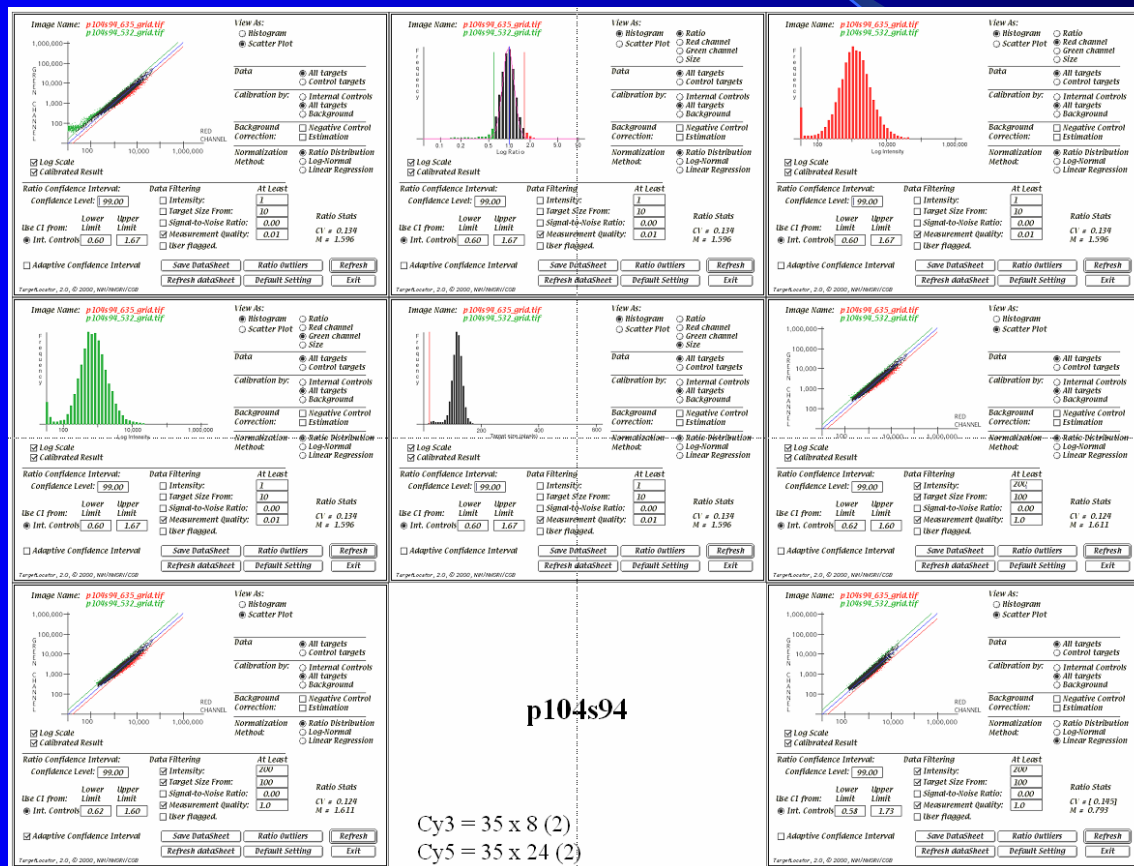


Other analyses as needed



Preparation of data for publication

Image Analysis Reports



p104s94

Cy3 = 35 x 8 (2)
Cy5 = 35 x 24 (2)

MAPS Analysis

Found 202 (before filtering on CV)																
Yeast ORF	Ratio	Flag	Description	Ratio	1	2	Chr	Start	Score	q	Mean(log ₂ CalRatio)	n	Deviation	Error	CV	ORF
YPR200C	4 out of 4	CellRes	Required for arsenate resistance	13.39	4218	22.52	5311.8	1133.8	0.679	2.553	2.55	2.85	1.45	0.73	0.6	YPR200C
				13.29	4219	22.52	5311.8	1133.8	0.67							
				1.7	4220	19.27	1947.8	325.5	1.588							
YPR201W	4 out of 4	CellOrgTransF _{ac}	Putative membrane protein involved in arsenite transport	3.92	4221	18.53	2428.1	1156.4	0.67	1.409	1.41	1.44	0.67	0.34	0.5	YPR201W
				3.99	4218	19.19	913.9	655.3	0.681							
				3.96	4219	19.19	913.9	655.3	0.668							
YGB234W	4 out of 4	CellOrgCellRe _s	Flavohemoglobin	1.7	4220	18.94	1733.4	289.8	0.816	1.05	1.05	1.12	0.35	0.17	0.3	YGB234W
				1.85	4221	17.46	1150.2	1156.9	0.668							
				2.53	4218	24.47	4538/5130.6		0.693							
YPL171C	4 out of 4	Energy	NAD(P)H dehydrogenase	2.51	4219	24.47	4538/5130.6		0.656	0.849	0.78	0.79	0.13	0.07	0.2	YPL171C
				1.88	4220	23.08	7671.7	1157.1	0.656							
				1.54	4221	20.65	3167.5	520.2	1.563							
YJL212C	4 out of 4	Energy	NAD(P)H dehydrogenase	1.73	4218	18.51	476.2	785.2	0.336	0.775	0.98	0.97	0.35	0.2	0.5	YJL212C
				1.72	4219	18.51	476.2	785.2	0.336							
				2.07	4220	16.96	962.9	132.2	21.152							
YJL212C	3 out of 4	CellIG/D	"Oligopeptide transporter; Optlp transports tetra- and pentapeptides, including the endogenous opioid pentapeptide leucine enkephalin."	1.71	4221	16.17	706.1	104.2	1.013	0.775	0.98	0.97	0.35	0.2	0.5	YJL212C
				1.98	4218	20.86	1149.9	1660.5	0.675							
				1.96	4219	20.86	1149.9	1660.5	0							
YGB142W	4 out of 4	N/A	Gene/protein whose expression is elevated in a bnf1 minus/Bn1p lacking yeast strain.	1.29	4220	18.98	1532.6	338.2	27.791	0.682	0.75	0.73	0.14	0.07	0.2	YGB142W
				1.66	4218	24.06	3195/5492.8		0.077							
				1.65	4219	24.06	3195/5492.8		0.077							
YAL067C	3 out of 4	MetabTransF _{ac}	putative permease	1.74	4220	22.45	5325.1	1965.9	1.272	0.549	0.56	0.56	0.02	0.01	0	YAL067C
				1.39	4221	21.18	3613.8	655.9	4.432							
				1.48	4218	18.85	494.1	1956.4	0.674							
YOL166C	3 out of 4	N/A	N/A	1.47	4219	18.85	494.1	1956.4	0	0.479	0.38	0.39	0.16	0.1	0.3	YOL166C
				1.44	4221	14.76	397.6	659.9	2.051							
				1.31	4218	19.18	522.2	1138	0							
YOL150C	3 out of 4	N/A	N/A	1.3	4219	19.18	522.2	1138	0.674	0.447	0.47	0.46	0.04	0.02	0.1	YOL150C
				1.59	4220	17.02	863	154.4	17.05							
				1.39	4218	20.77	934.9	1918.8	0.675							
YEB103W	3 out of 4	CellOrgCellRe _s	member of 70 kDa heat shock protein family	1.38	4219	20.77	934.9	1918.8	0	0.433	0.45	0.44	0.03	0.02	0.1	YEB103W
				1.32	4220	19.82	2080.1	1445.5	4.153							
				1.37	4218	21.81	1325.8	2774.4	0.674							
YGL032C	4 out of 4	CellIG/DCellOr _g	adhesion subunit of a-agglutinin	1.36	4219	21.81	1325.8	2774.4	0	-0.747	-0.68	-0.69	0.13	0.07	0.2	YGL032C
				1.32	4220	20.09	2281.6	489.3	2.749							
				0.62	4218	22.24	1039.9	4765.5	0							
YGL032C	4 out of 4	CellIG/DCellOr _g	adhesion subunit of a-agglutinin	0.62	4219	22.24	1039.9	4765.5	0	-0.747	-0.68	-0.69	0.13	0.07	0.2	YGL032C
				0.63	4220	19.78	1415.2	2635.2	1.349							
				0.52	4221	18.14	766.8	376	14.929							

11 genes remain after filtering

Initial Meeting

- Usually occurs 1-2 weeks following distribution of MAPS analysis and reports
- Initiated by you
- Involves members of your lab and the microarray group
 - Rick Paules and/or Jeff Tucker
 - Representative from Bioinformatics group (Jianying Li)
 - Sherry Grissom or Danica Ducharme
 - Jennifer Collins
 - YOU

Basic Services/Analyses

- Data compilation
 - For clustering and other analyses
 - For your collaborators
 - For your publications
- Hierarchical clustering (Cluster/Treeview)
- Resolver Analysis (Coming soon...)

Higher Order Analyses

- Who do I contact?
 - Jennifer Collins
- What types of analysis can I expect?
 - Mixed Linear Model analysis, specialized multivariate and computational analyses, Principal Components Analysis, etc.
 - More information later this summer...
- How do I find out more info about each?
 - Microarray website
 - Publications

GeneSpring

- NOW:
 - Sample Intensity files
 - Assistance loading data
- LATER:
 - Genomes for all in-house chips
 - Example data for each NIEHS genome
 - Custom scripts

Other Services

- Streaked out clones for sequencing, etc.
- Sequences for Toxchip and Rat cDNA chip
- 70mer sequences from oligos
- Data files (compiled or individual)
- Figures, microarray methods, and web posting of data

Available Resources

- Staff in the microarray group
- Publications by other NIEHS researchers
- WEBSITE

<http://dir.niehs.nih.gov/microarray>

- Standard operating procedures
- Bioinformatics
- Publications
- FAQs
- Chips/Clones
- General info for NIEHS researchers who have a project or want to start one